GLASGOW
PHILOSOPHICAL
SOCIETY.

THE

QUARTERLY JOURNAL.

VOLUME XVI.

THE

QUARTERLY JOURNAL

OF

SCIENCE,

LITERATURE, AND THE ARTS.

THE ROYAL INSTITUTION OF GREAT BRITAIN

GLASGOW
PHILOSOPHICAL
SOCIETY

VOLUME XVI.

LONDON:
JOHN MURRAY, ALBEMARLE-STREET.

1823.

LONDON:
PRINTED BY W. CLOWES,
Northumberland court.

UNIVERS AHOMA
LIBRARY

DeGolyer

505
Q28
v.16

CONTENTS

OF

THE QUARTERLY JOURNAL,

No. XXXI.

ART. PAGE

I. On the Theory of the Dead Escapement, and the reducing it to practice for Clocks with Seconds and longer Pendulums. By B. L. VULLIAMY, Clock-maker to the King 1

II. Account of the Remains of a Roman Camp at Mitchley, near Birmingham. By JOHN FINCH, Esq. 24

III. Observations on the Project of taking down and rebuilding London Bridge, and on the Design for the New Bridge by the late Mr. Rennie. By a Correspondent. 27

IV. Remarks on the Deposition of Dew. By GEO. HARVEY, M.G.S, 35

V. On Animals preserved in Amber, with Remarks on the Nature and Origin of that Substance. By J. MAC CULLOCH, M.D., F.R.S. 41

VI. LAMARCK's Genera of Shells. 49

VII. On an Arenaceo-calcareous Substance found near Delvine in Perthshire. By J. MAC CULLOCH, M.D., F.R.S. 79

VIII. On the Process of Reproduction of the Members of the Aquatic Salamander. By TWEEDY J. TODD, M.D., F.R.M.S.E., &c. 84

IX. PROGRESS OF FOREIGN SCIENCE 97

DeGolyer

CONTENTS.

ART. PAGE

X. ANALYSIS OF SCIENTIFIC BOOKS.

i. Lectures on Comparative Anatomy, in which are explained the preparations in the Hunterian Collection, illustrated by Engravings; to which is subjoined "Synopsis Systematis Regni Animatsis nunc primum ex ovi modificationibus propositum." By Sir EVERARD HOME, Bt., V.P.R.S. F.S.A., F.L.S. 134

XI. ASTRONOMICAL AND NAUTICAL COLLECTIONS, No. XV.

i. An Extension of the Inverse Series for Computation of Refraction together with a direct Solution of the Problem. ii. Catalogue of the Orbits of all the Comets hitherto computed. By Dr. OLBERS and Professor SCHUMACHER, Astr. Abl. I. 139

XII. MISCELLANEOUS INTELLIGENCE.

I. MECHANICAL SCIENCE.

1. Cutting of Steel by Soft Iron. 2. Water-proof Cloth. 3. Chain Bridge over the Tamar. 4. Pottery Painting. 5. Extinction of Fires in Chimnies. 6. Smut in Corn prevented 155

II. CHEMICAL SCIENCE.

1. Experiments with certain Substances under high Pressures. 2. Fusion of Charcoal, Plumbago, Anthracite, and Diamond; probable productions of Diamonds. 3. Action of Nitric Acid on Charcoal, production of Cyanogen. 4. Crystallized Carbon-Artificial Plumbago. 5. Action of Steam on Solution of Silver and Gold. 6. Charge of Musket Balls in Shrapnell Shells. 7. Action of Gunpowder on Lead. 8. Inflammation of Gunpowder by Slacking Lime. 9. Purple Tint of Plate Glass affected by Light. 10. On the Uncertainty of Chemical Analysis. 11. Solubility diminished by Heat. 12. Inflammability of Ammoniacal Gas. 13. Amalgamation of Nickel and Cobalt by Arsenic. 14. Chronium in Ore of Platinum. 15. Test of Platinum. 16. Combustion by Blow-pipe under Water. 17. Composition of James's Powders. 18. Adulteration of Ultramarine. 19. On the presence of Iodine in the Waters of Sales, Piedmont. 20. Evolution of Gas during Metallic precipitation. 21. Electro-Magnetic Effects of Alkalies, Acids, and Salts. 22. Table of Thermoelectrics. 23. Horizontal Plate Electrical Machine. 24. Carbonic and Muriatic Acids of the Atmosphere. 25. Vegetable Alkali from Rhubarb. 26. Change of Fat in Perkin's Engine, by Water, Heat, and Pressure. 27. On

ART. PAGE

Eritrogene, and the colouring Matter of the Blood. 28. Compounds of Cystic Oxide. 29. On Prussian Blue in Urine. 30. Excrement of the Boa Constrictor, Urate of Ammonia. 31. Prize Questions. . 156

III. Natural History.

1. Extraordinary Formation of Hornstone. 2. Matrix of the Brazilian Diamond. 3. Native Carbonate of Soda in India. 4. Acid Earth of Persia. 5. New Experiment with Hydrogen. 6. Organic Remains in Poland. 7. Charcoal in the Cinders of Vesuvius. 8. Observations made on Vesuvius and its Products. 9. Hot Springs at Jumnotri. 10. Shock of an Earthquake at Sea. 11. Aerolite at Coddenham, in Suffolk. 12. Direction of Lightning. 13. Observations on the Boletus Igniarius. 14. On the employment of Electricity in the treatment of Calculus Cases. 15. Dumbness cured by Electricity.

1. The Greenwich Rural Circle 189

2. Mr. Groombridge's Transit Circle . . . . ib.

XIII.—Meteorological Journal 190

Professor Brande's Lectures on Chemistry 191

PROFESSOR BRANDE *will commence the* Chemical Lectures *in the Laboratory of the Royal Institution, on Tuesday the 7th of October, at nine in the morning precisely. A Prospectus of these Lectures will be found at page* 191 *of this Number.*

TO OUR READERS AND CORRESPONDENTS.

Reviews of Dr. Henry's Elements of Chemistry, and of the last part of the Philosophical Transactions, are postponed to the ensuing Number, in consequence of our arrears in the department of Foreign Science.

The description of Mr. Rider's Patent Steam Engine, together with Illustrative Plates, will be inserted in our next Number.

Lamarck's Genera of Shells will be concluded in the present Volume.

The remarks of O. P. on the proposed Charter of the Asiatic Society have reached us, and will be duly attended to.

Mr. James Adams' Communication reached us too late for insertion; with his permission we reserve it for our next.

We are obliged by Mr. Prinsep's remarks on Adie's Sympiesometer, which we also reserve from want of room for the plate.

We would willingly oblige our correspondent W. W. by the insertion of his communication; but as it is merely an extract from the Rev. G. S. Faber's "Genius and Object of the Patriarchal, the Levitical, and the Christian Dispensation," we must beg leave to refer our readers to the Chapter "on the Mosaic Cosmogony" in that work, to assist them in appreciating the opinions of M. De Luc, as opposed to those of Mr. Granville Penn, upon the subject of the word *day*, as employed in the Mosaic history of the Creation.

The description of the New Laboratories and Apparatus erected at Apothecaries' Hall, will probably appear in another form; but our Correspondent may be assured we shall attend to his wishes.

"Hints to the Architect of the British Museum" appear to us to be premature. Has P. seen the plan?

Mr. Harvey's paper on the Population of Great Britain, with it accompanying plate, will appear in our next.

CONTENTS

OF

THE QUARTERLY JOURNAL,

No. XXXII.

ART. PAGE.

I. A short Account of the Origin, Progress, and present State of the various Establishments for conducting Chemical Processes, and other Medicinal Preparations, at Apothecaries' Hall. *(With a Plate.)* 193

II. Remarks on the Numerical Changes of the Population of Great Britain, as divided into the Classes of Agriculturists, Manufactures, and non-productive Labourers, during the period from 1811 to 1821. By GEORGE HARVEY, Esq., M.G.S., M.A.S., &c., &c., *(With a Plate.)* 233

III. On the Herring. By J. MAC CULLOCH. M.D., F.R.S. . . . 204

IV. A new Demonstration of Taylor's Theorem. By EDW. WILMOT, Esq., T.C.D 228

V. Historical Statement respecting the Liquefaction of Gases. By Mr. M. FARADAY, Cor. Mem. Royal Acad. Paris, Chem. Assist. in the Royal Institution, &c. 289

VI. Lamarck's Genera of Shells,—concluded. *(With a Plate.)* . . 241

VII. Experiments on the Proportion of Charcoal obtained from Woods having a greater Specific gravity than Box. By Mr. T. GRIFFITHS . . . . . . : 264

VIII. Description of Mr. Rider's Rotatory Steam-Engine. *(With a Plate)* 266

IX. Observations on the Modern Theory of Physical Astronomy. By JOHN WALSH, Esq. 270

ART. PAGE

X. Description of a Grotto in the Interior of the Colony of the Cape of Good Hope. By Mr. G. THOMPSON 272

XI. On some undescribed Minerals. By H. J. A. BROOKE, Esq., F.R.S. 274

XII. On a Mountain Barometer constructed with an Iron Cistern. By J. NEWMAN, Philosophical Instrument Maker to the Royal Institution of Great Britain 276

XIII. Observations on the Ultimate Analysis of certain Vegetable Salifiable Bases. By W. T. BRANDE, Esq., Sec. R.S., and Professor of Chemistry in the Royal Institution 279

XIV. Astronomical Phenomena arranged in order of Succession for the first Three Months of the Year, 1824, computed for the Meridian and Parallel of Greenwich. By JAMES SOUTH, Esq. F.R.S. 286

XV. Proceedings of the Royal Society 297

XVI. ANALYSIS OF SCIENTIFIC BOOKS.

i. A Course of Lectures on Chemical Science as delivered at the Surrey Institution. By GOLDSWORTHY GURNEY 301

ii. Supplement to the Comparative Estimate of the Mineral and Mosaical Geologies, relating chiefly to the geological indications of the Phenomena of the Cave of Kirkdale 309

iii. Lectures on Comparative Anatomy, in which are explained the Preparations in the Hunterian Collection, illustrated by Engravings. By Sir EVERARD HOME, Bart., V.P.R.S., F.S.A., *&c. &c.* . . . 321

iv. Philosophical Transactions of the Royal Society of London, for the year MDCCCXXIII. 326

v. The Elements of Experimental Chemistry. By WILLIAM HENRY, M.D., F.R.S., *&c.* 332

XVII. ASTRONOMICAL AND NAUTICAL COLLECTIONS, No. XVI.

i. Description of a new Tide Guage. 348

ART. PAGE

ii. Catalogue of the Orbits of all the Comets hitherto computed. By Dr. OLBERS and Professor SCHUMACHER 348

iii. Report to the Board of Customs, containing a description of an improved Sliding Rule for guaging Casks. By Dr. YOUNG . . . 357

iv. Remarks on Professor Struve's Observations to determine the Parallax of the fixed Stars. By JOHN POND, Esq., Astr. Roy. . . 364

v. Account of some Parhelia seen at the Cape of Good Hope. By the Rev FEARON FALLOWS, A. M. 365

XVIII. MISCELLANEOUS INTELLIGENCE.

I. MECHANICAL SCIENCE.

1. Experiments on the tenacity of Iron Wire, by Col. Dufour. 2. Suspension Bridge of Iron Wire at Geneva. 3. Hydraulic Experiments on the Propagation of Waves, by M. Ridine, of Zuric. 4. On a phenomenon of Shadows, by M. Monyez. 5. On the Vibration of Air 367

II. CHEMICAL SCIENCE.

1. Thermo-Electric Rotation, by Prof. Cumming. 2. Thermo-Electric Rotation. 3. Thermo-Electric Phenomena with Iron. 4. Dobereiner's Eudiometer. 5. On the Action of Platina on mixtures of Oxygen, hydrogen, and other Gases. 6. Solar Light and Heat. 7. Benzoic acid in the ripe fruit of the Clove-tree. 8. Certainty of Chemical Analysis. 9. Correction of bulk of Gases for Temperature. 10. Supports for ignition of Particles by the Blowpipe. 11. Solubility of Substances induced by Tartaric Acid. 12. On two new coloured test Papers. 13. On the presence of ammonia in rust of Iron found in inhabited Houses. 14. New Carburetted hydrogen Gas. 15. On Titanium, by M. Rose. 16. Cadmium from Zinc-Works. 17. Alloy of Zinc and Iron. 18. Muriates of Baryta, Strontia, and Lime. 19. On a Quadruple Salt. 20. Pyrophorus from Tartrate of Lead. 21. On a green Pigment. 22. Peculiar effects of Burning on Limestone or Chalk. 23. New vegetable principle; Dalhine. 372

III. NATURAL HISTORY.

ART. PAGE

1. Amici's Microscopical Observations. 2. Dry Rot. 3. Insects in Amber. 4. Analysis, by M. Arwedson. 5. Loose Crystals in a cavity in Quartz. 6. Chloride of Potassium. 7. Chlorine a remedy in Scarlet fever. 8. Efficacy of the Chloride of Lime as a Disinfector. 9. Use of Sugar as an antidote to lead, in cases of poisoning. 10. Volcanic Eruption in Iceland. 11. Periodical rise and fall of the Barometer. 12. Periodical Thunder-storms. 13. Voyage of Discovery. 14. Animalculæ of Conferva Canoides 388

Literary Notices. 397

XXI. Meteorological Diary, for the Months of September, October, and November, 1823 398

Index 400

Preparing for Publication in 1 Vol. 8vo.

A MANUAL OF PHARMACY. by W. T. BRANDE, F.R.S., *&c.*

Comprising the natural, medical, and chemical, history of the articles contained in the list of Materia Medica, attached to the London Pharmacopæia, and of other substances occasionally employed in medicine: together with a full exposition of the various pharmaceutical processes directed by the College of Physicians, and formulæ for the prescription of the principal simple and compound remedies.

This volume is intended as a pupil's companion to the New London Pharmacopæia, and will appear as soon as possible after the publication of that work.

Royal Institution, Albemarle-Street,
January, 1824.

The Members of and Subscribers to the Royal Institution are informed, that the Lectures will commence on Saturday, the 7th of February next, at Two in the Afternoon, and that the following arrangements have already been made.

On Electricity and Electro-magnetism, by W. T. **Brande**, Esq. F.R.S., Professor of Chemistry in the Royal Institution.

On the leading subjects of Mechanical Philosophy, and their recent improvement, particularly on Optics and Hydraulics: by J. **Millington**, Esq., F.L.S., and Professor of Mechanics in the Royal Institution.

On Plane Geometry: by **John Walker**, Esq., M.R.I.A.

On Music: by W. **Crotch**, Mus. Doctor and Professor of Music in the University of Oxford.

The Lectures and Demonstrations on Practical Chemistry, delivered by **Mr. Brande**, in the Laboratory of the Royal Institution will commence on Tuesday, the 10th of February, at Nine in the Morning, precisely, and will be continued on Tuesdays, Thursdays, and Saturdays, at the same hour.

TO OUR READERS AND CORRESPONDENTS.

We are under the necessity of postponing two Communications, with which we have been favoured by Mr. James Adams.

An extension of the demonstration of the Taylorian Theorem, published in this number, to functions of several variables, will appear in our next number.

Mr. Adie's Sympiesometer, is not an instrument of sufficient importance to induce us to engrave Mr. Prinsep's corrected scale.

We have received a paper "on the Use of the Pocket box Sextant," which reached us too late for this number.

Mr. Levy's observations on the crystalline forms of artificial salts will be resumed in our next.

Our Correspondent at Penzance has omitted the sketch which should have accompanied his communication.

"Amicus Cantabrigiensis," is under consideration.

The enormous expense attendant on printing extensive tables, obliges us to decline the insertion of Mr. Wilmot's very interesting paper on the Population, *&c.*, of London. We particularly request our Astronomical and Meteorological Correspondents to take the above consideration into account.

X. will be so good to inform us to whom we are to return his "Strictures," on the proposed London Bridge. The considerations which he suggests, have no influence with us; but his remarks will not find a place in this Journal, till he can persuade us that invective is argument, and personal abuse, candid criticism.

We have received an anonymous article on the proposed "Tunnel under the River Thames," which we decline publishing, as the writer is evidently unacquainted with the means by which the undertaking is intended to be accomplished. With him, we greatly doubt its practicability; and, if practicable, its permanance and utility, are still very questionable.

The queries of F. R. S., respecting Mr. Perkins' steam-engine, we have no means of answering.

To Readers and Correspondents.

An account of the Overflowing Well at the Horticultural Society's garden, at Chiswick, with a description of the method employed in boring for water, will appear in our ensuing number.

The Meteoric Stone supposed to have fallen at Coddenham, which is noticed in our last number, (p. 184,) is, it seems, merely a nodule of flint. Its history has been particularly inquired into, by the Rev. W. Kirby, of Barham, and it appears to have been picked up, during a thunder storm, at a place struck by lightning. Mr. Brayley of Islington, to whom we are indebted for this information, remarks, that "having examined all the relations of the falls of meteorites which I have been able to procure, in consequence of being engaged in a work on the subject, I have not met with a single authenticated instance of the fall of a meteorite, during a true thunder storm." We regret that Mr. Brayley's communication reached us too late for insertion.

We had prepared an account of the Progress of Foreign Science for the present number, but have no room for it. Our ensuing number will contain a long article on this subject.

We have not received the work of MM. Monticelli and Covelli, which our Correspondent at Milan wishes us to notice.

Apothecaries' Hall.

Notice is hereby given,

THAT

A COURSE OF LECTURES ON THE MATERIA MEDICA AND PHARMACY

Will be delivered at Apothecaries' Hall, during the ensuing season, by

WILLIAM THOMAS BRANDE, F.R.S.

These Lectures will commence on Friday, the 2nd of January, 1824, at half-past eleven in the forenoon precisely, and will be continued on each succeeding Friday at the same hour. They will include a full account of the natural, medical, and chemical history of the ARTICLES of the MATERIA MEDICA, illustrated by Drawings and Specimens, and an Explanation of the Chemical Processes of the *Pharmacopœia*, as conducted in the Laboratories at Apothecaries' Hall.

The admission fee to the course is Two Guineas.

For further particulars, apply to Mr. Brande, No. 20, Grafton-street, Bond-street; or to Mr. Sayer, the Beadle at Apothecaries' Hall.

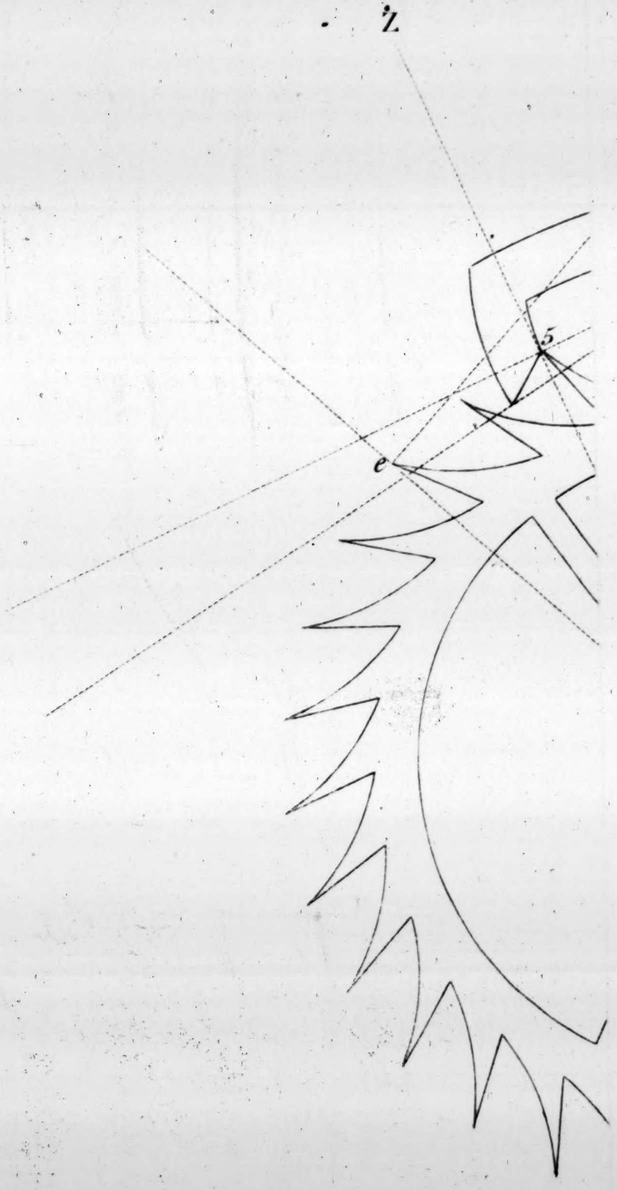
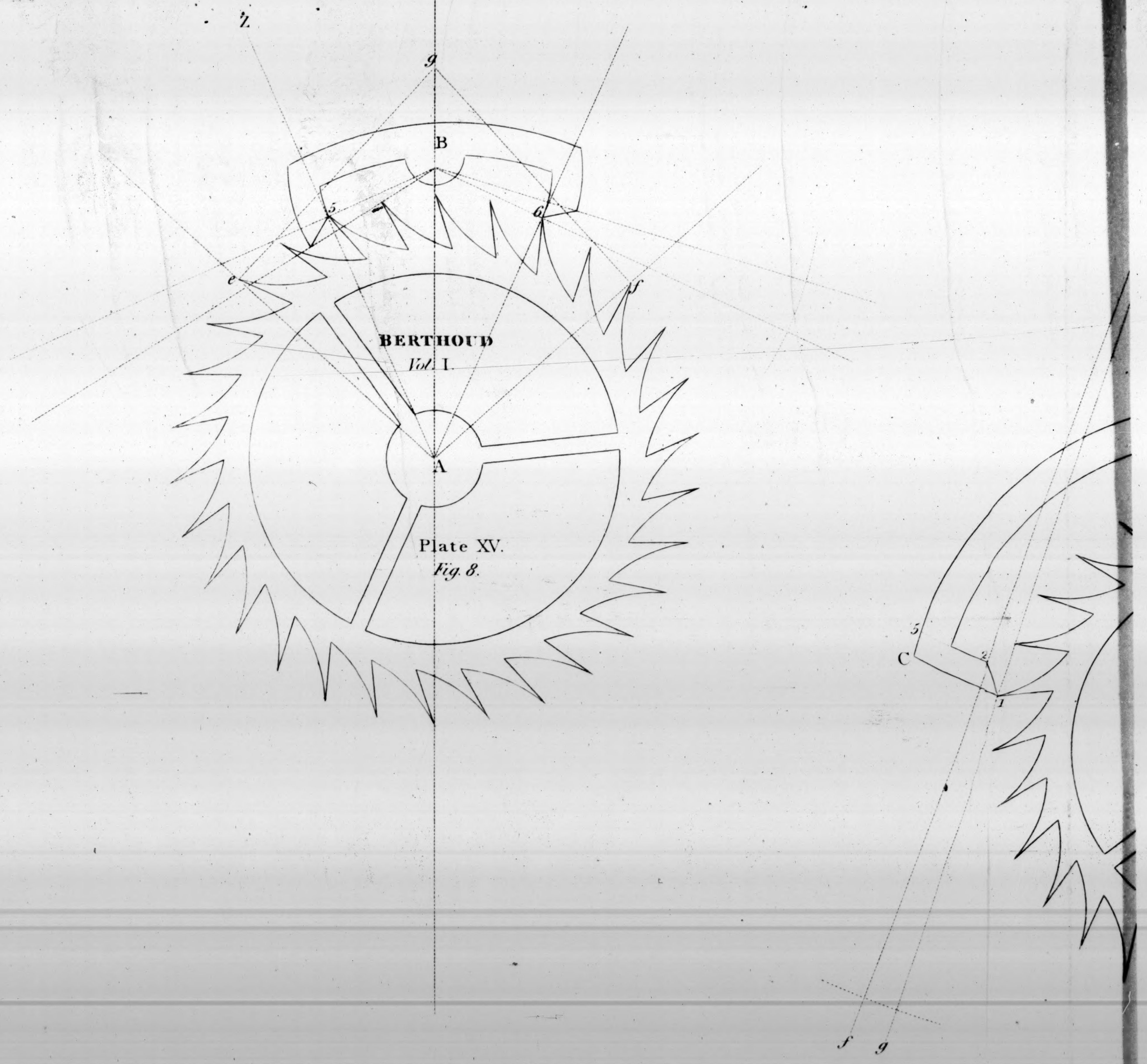

Z
5
e

Fig. 1.



B. L. Vulliamy, Clock Maker to the King, delin.

Fig. 2.

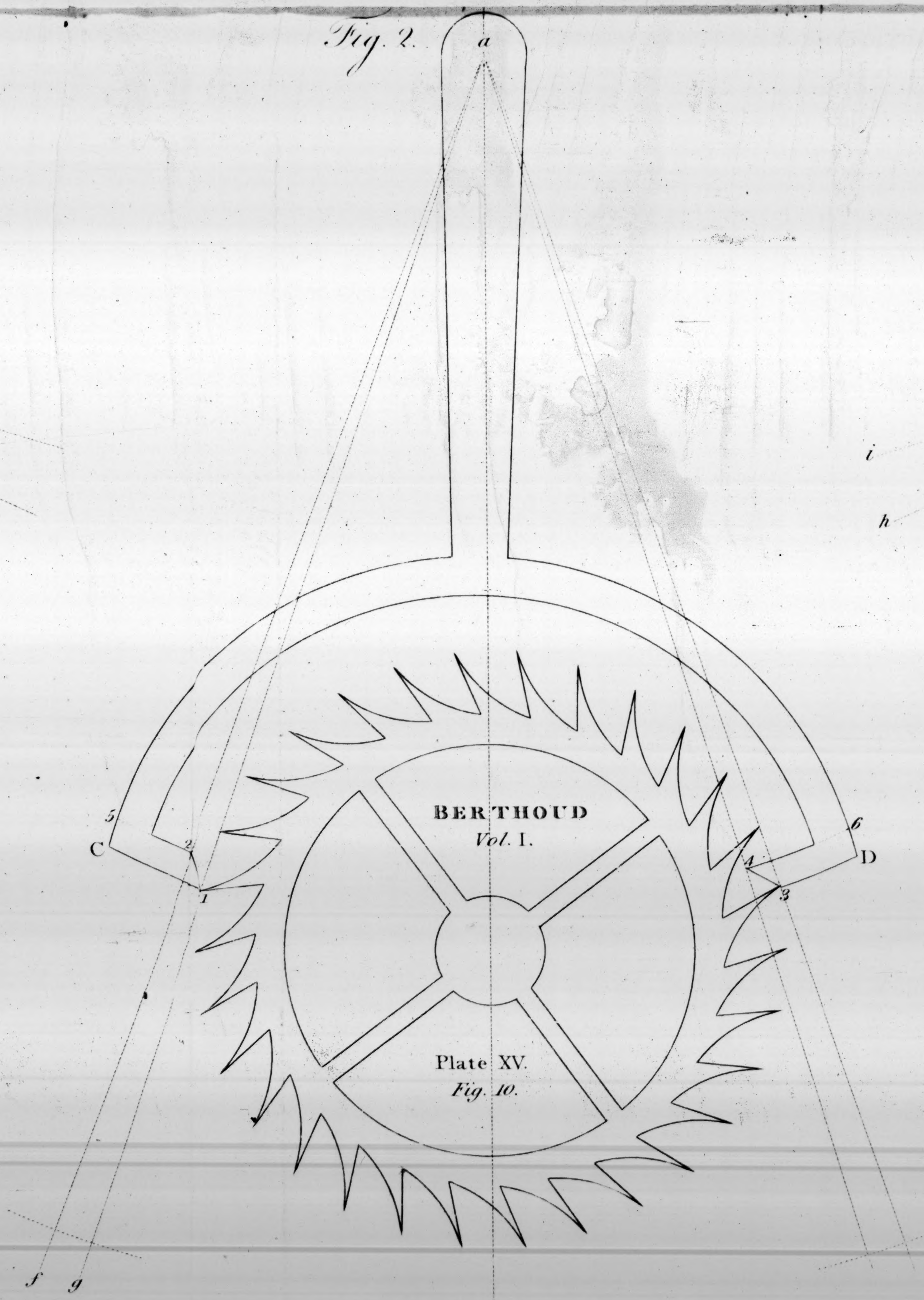

a
5
C
2
1
4
3
6
D
BERTHOUD
Vol. I.
Plate XV.
Fig. 10.
f
g

Fig. 3.

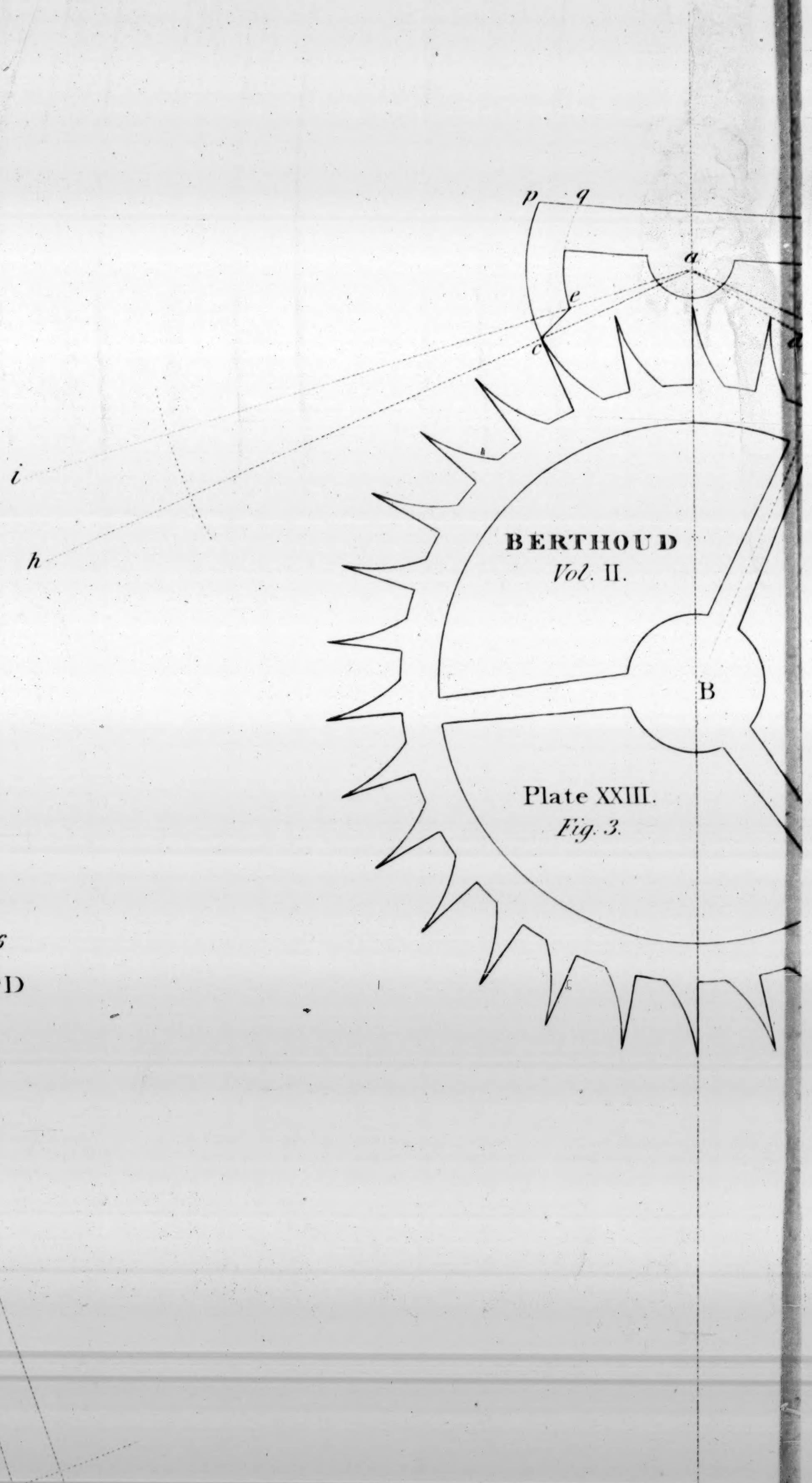
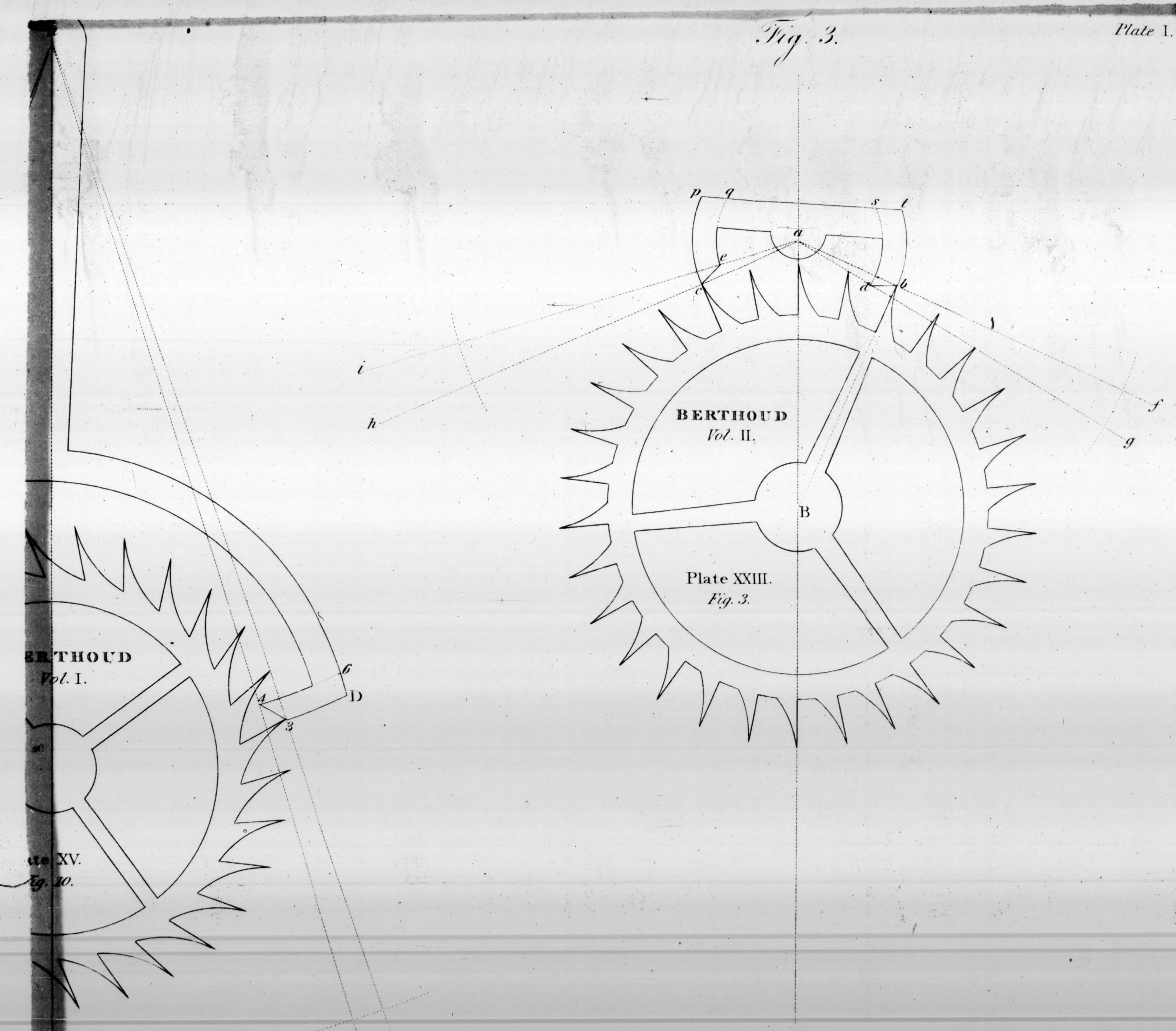

p
q
a
e
c
i
h
BERTHOUD
Vol. II.
B
Plate XXIII.
Fig. 3.

Plate I. Vol. XVI.

Fig. 3.



[illegible]marle Street, London: 1823.

Fig. 2.

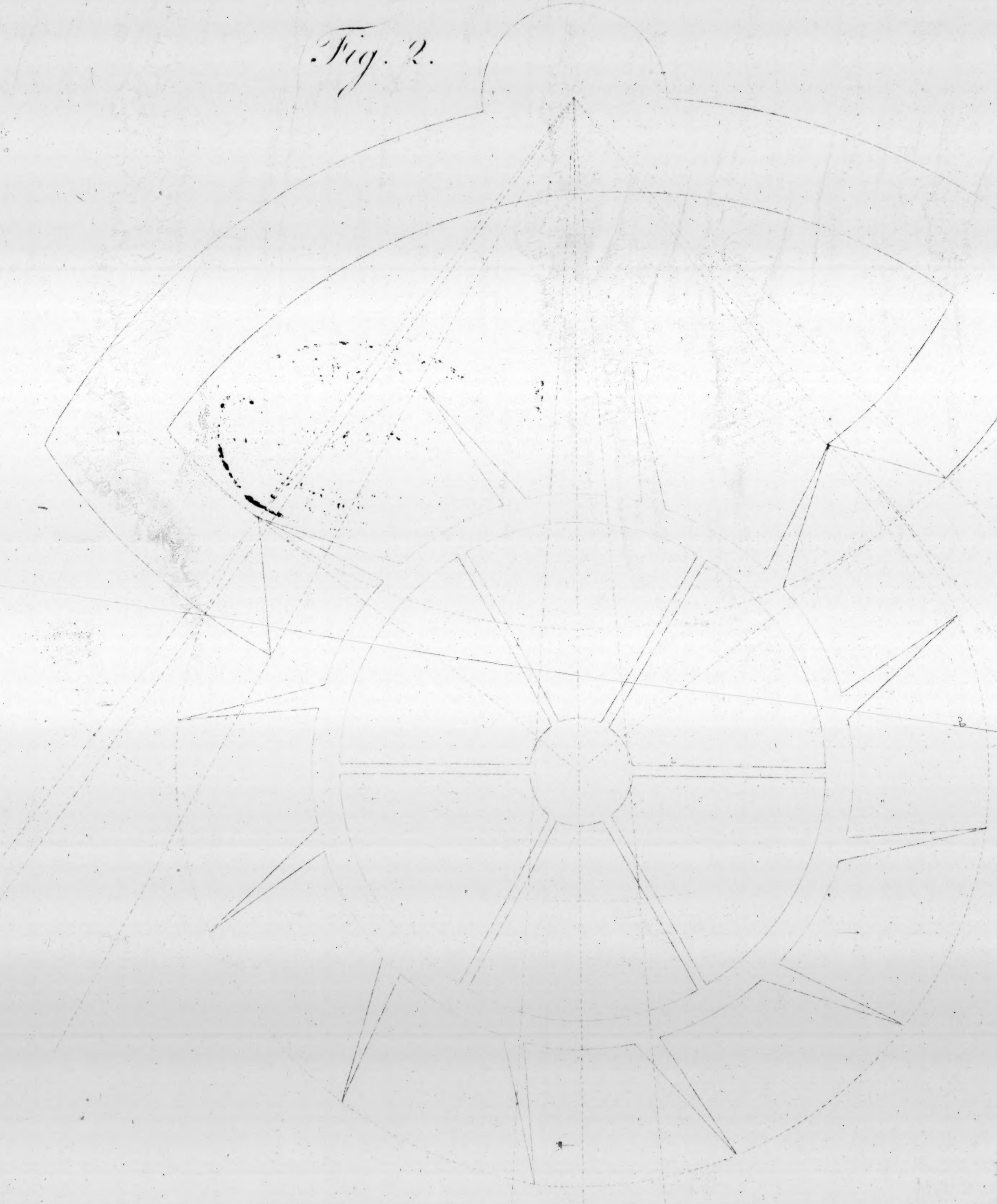
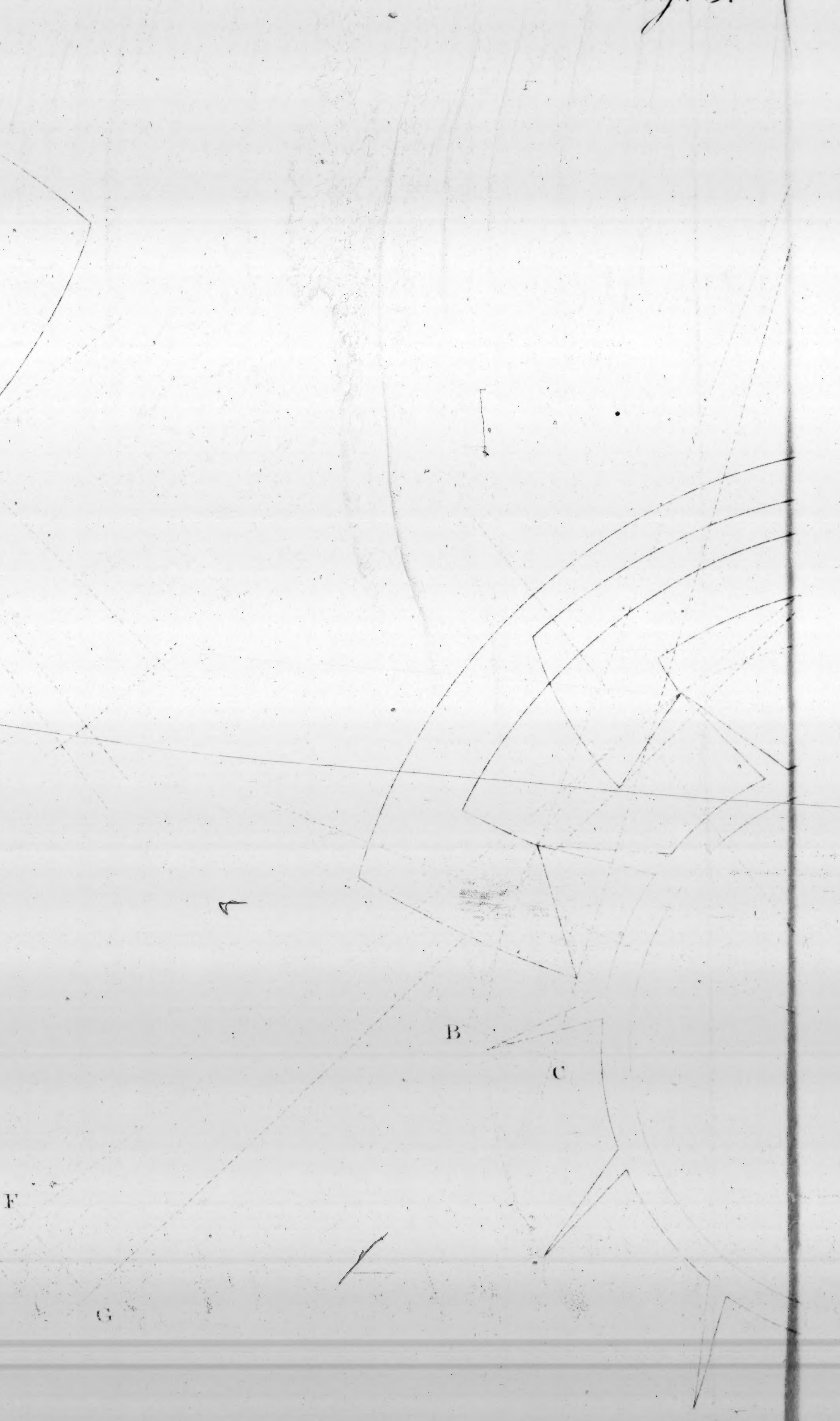


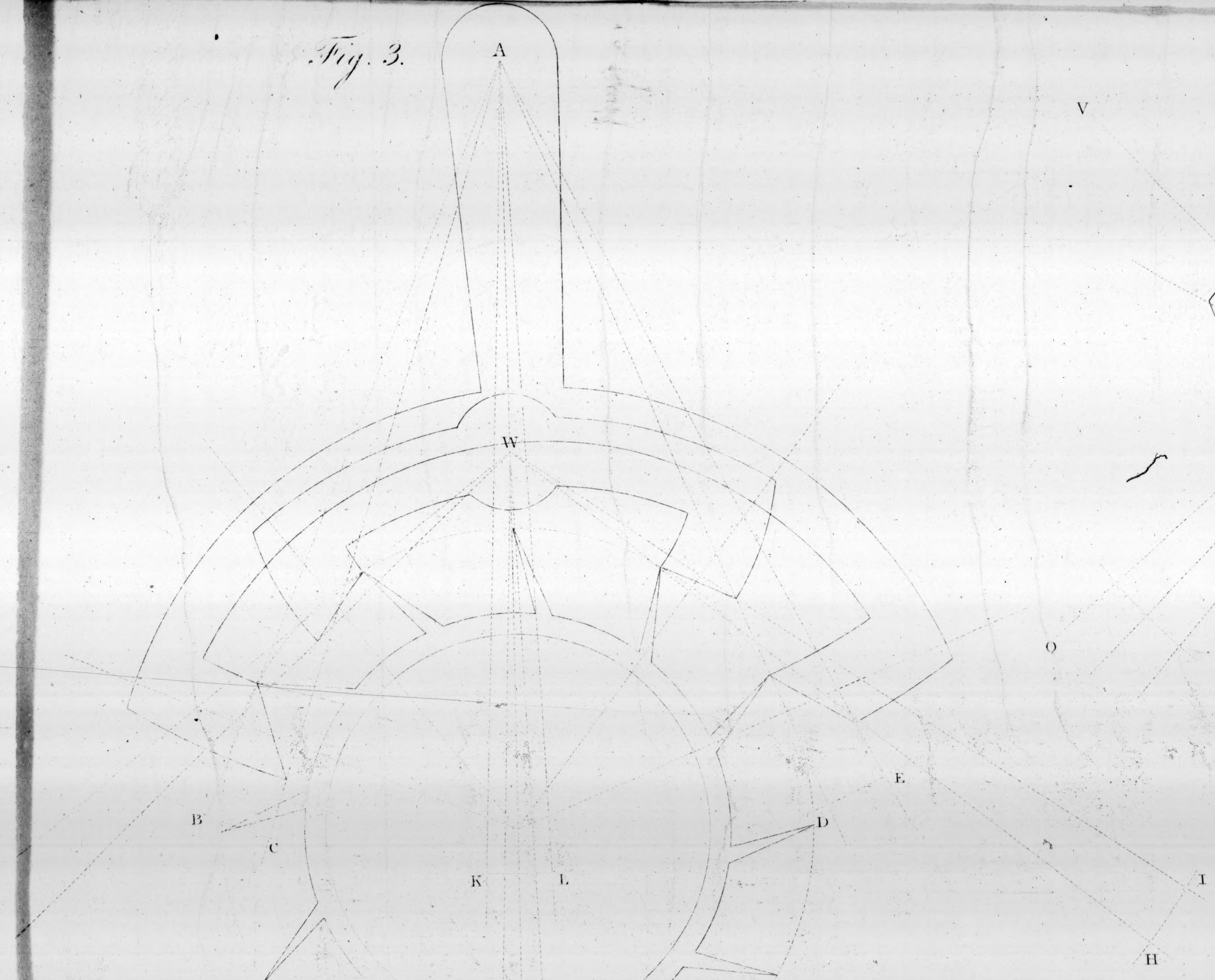
Fig. 3.



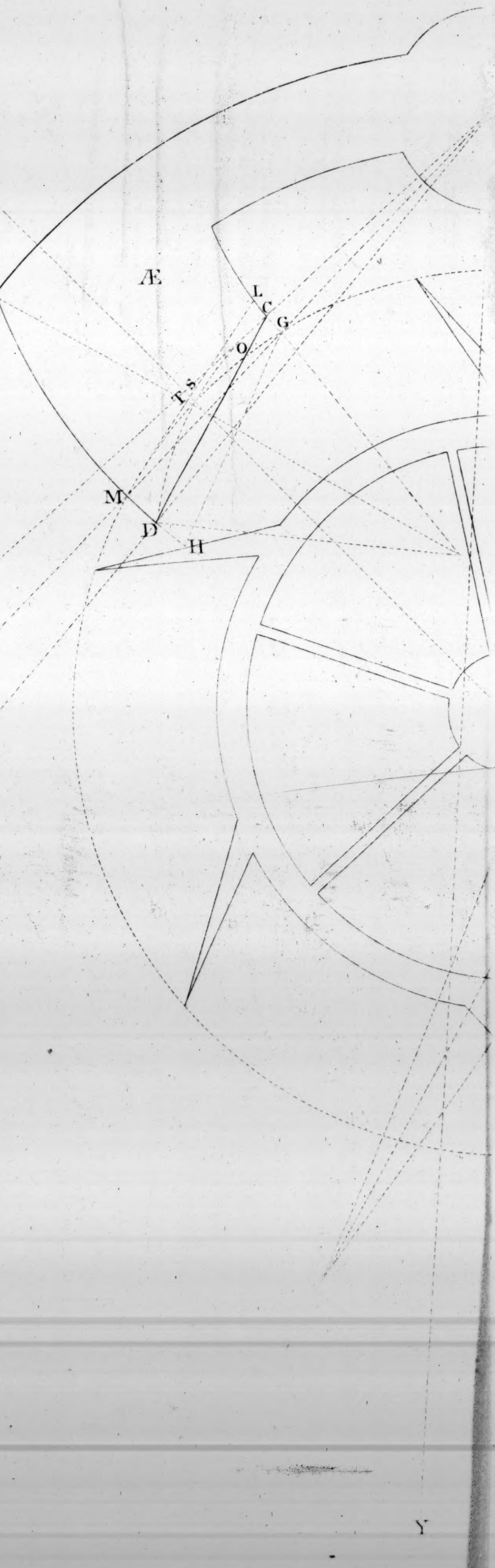
B. L. Vulliamy, Clock Maker to the King, delin.

Published by John Murray, Albemarle Street, London: 1823.

Fig. 3.



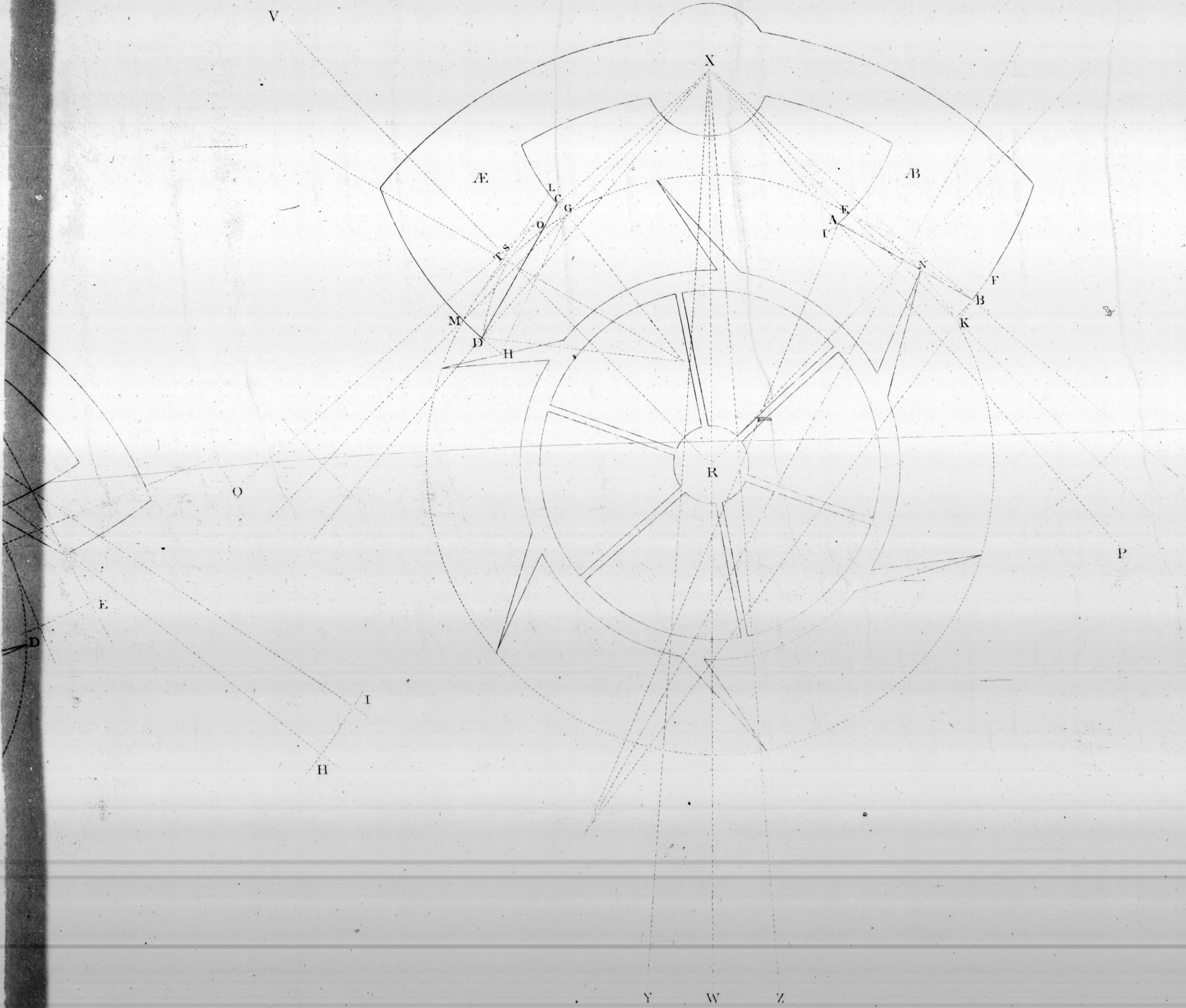
Fig



marle Street, London: 1823.

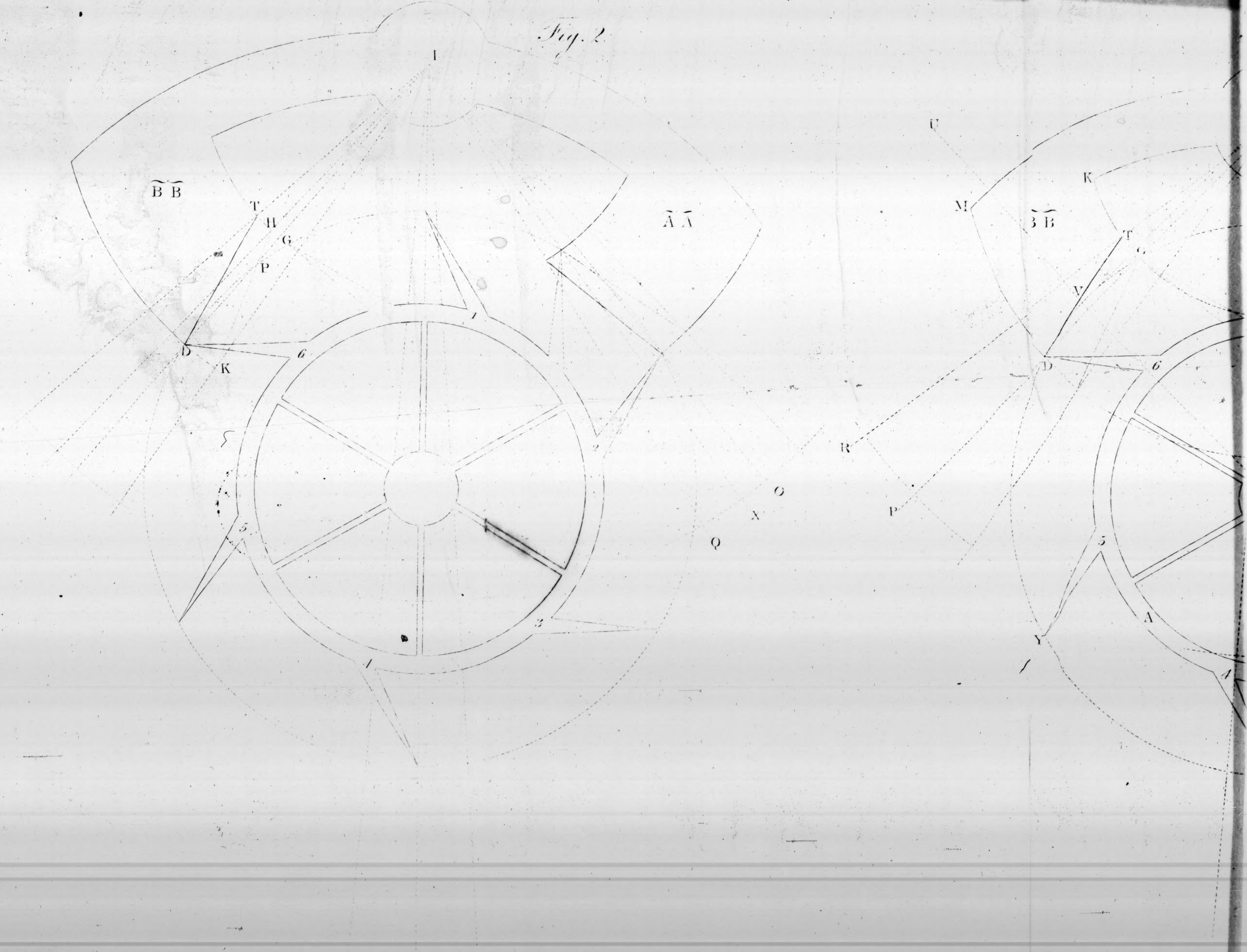
Plate II. Vol. XVI.

Fig. 1.



Js Basire, sculp.

Fig. 2.



B. L. Vulliamy, Clock Maker to the King, delin.

Published by John Mur

Fig. 1.

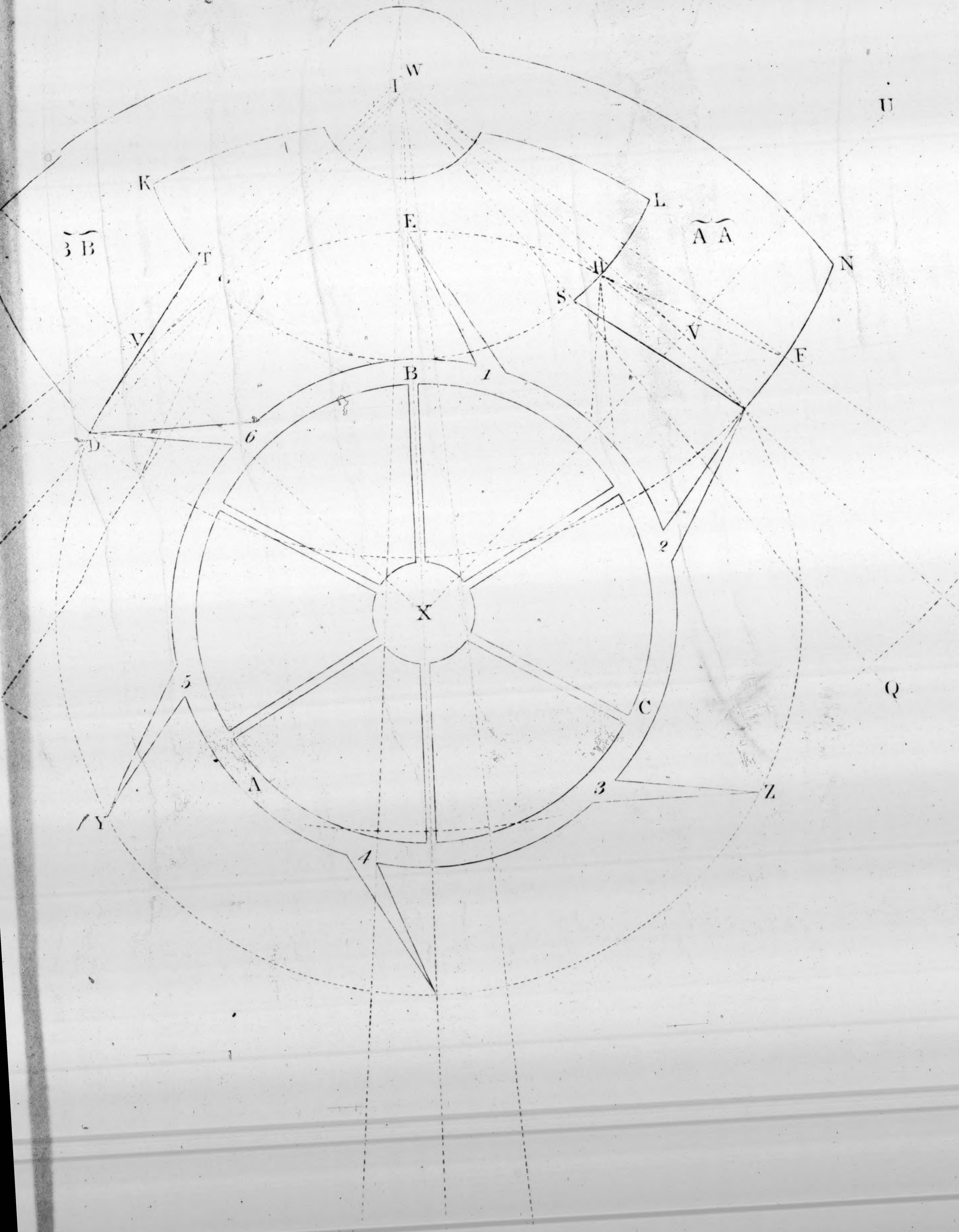
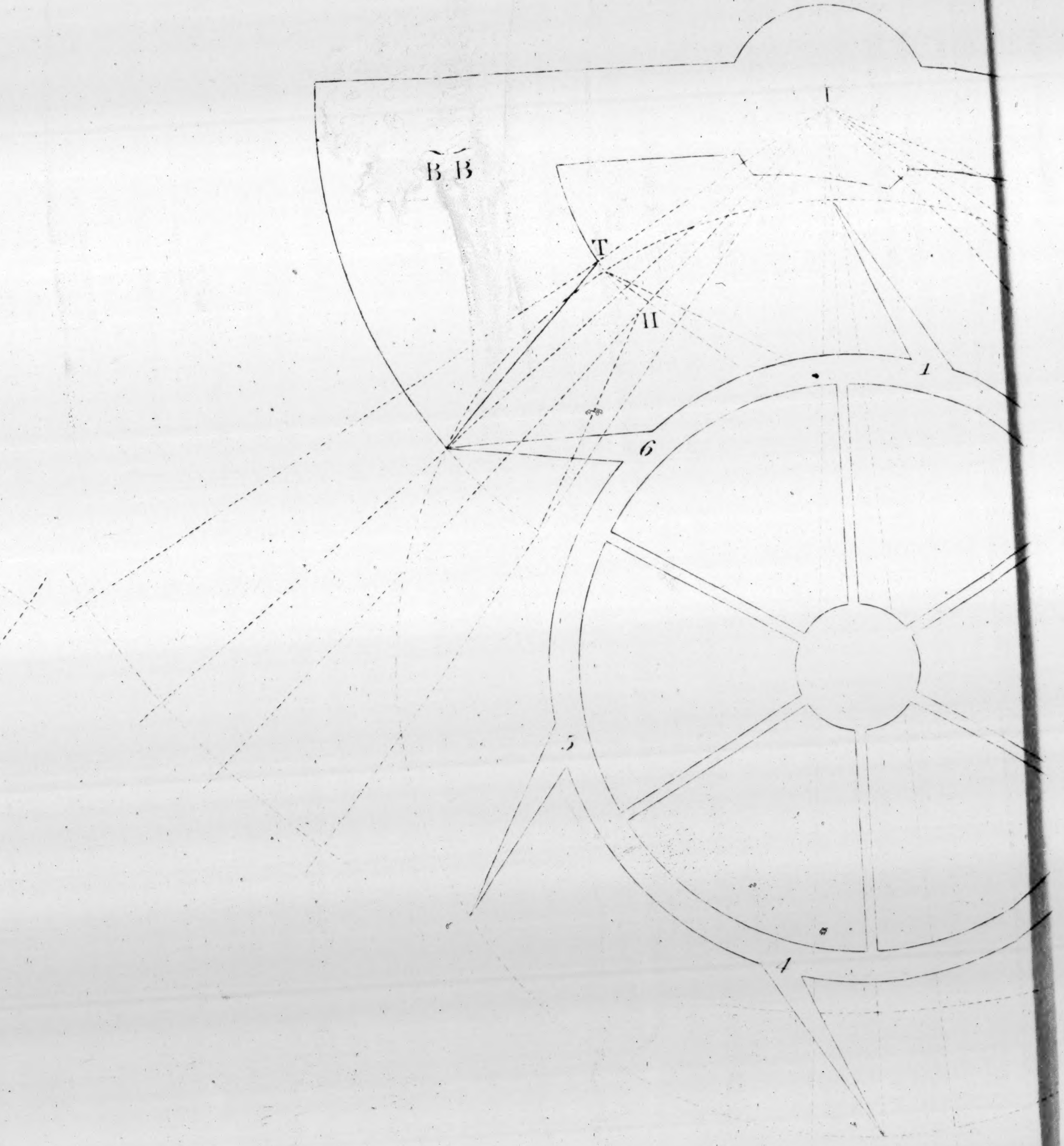


Fig. 3.



Published by John Murray, Albemarle Street, London: 1823.

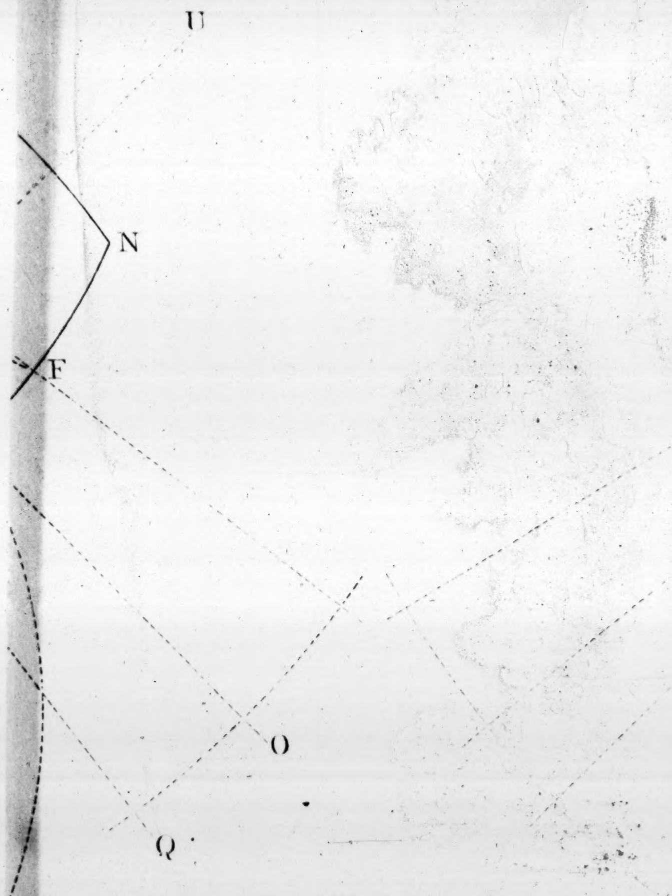
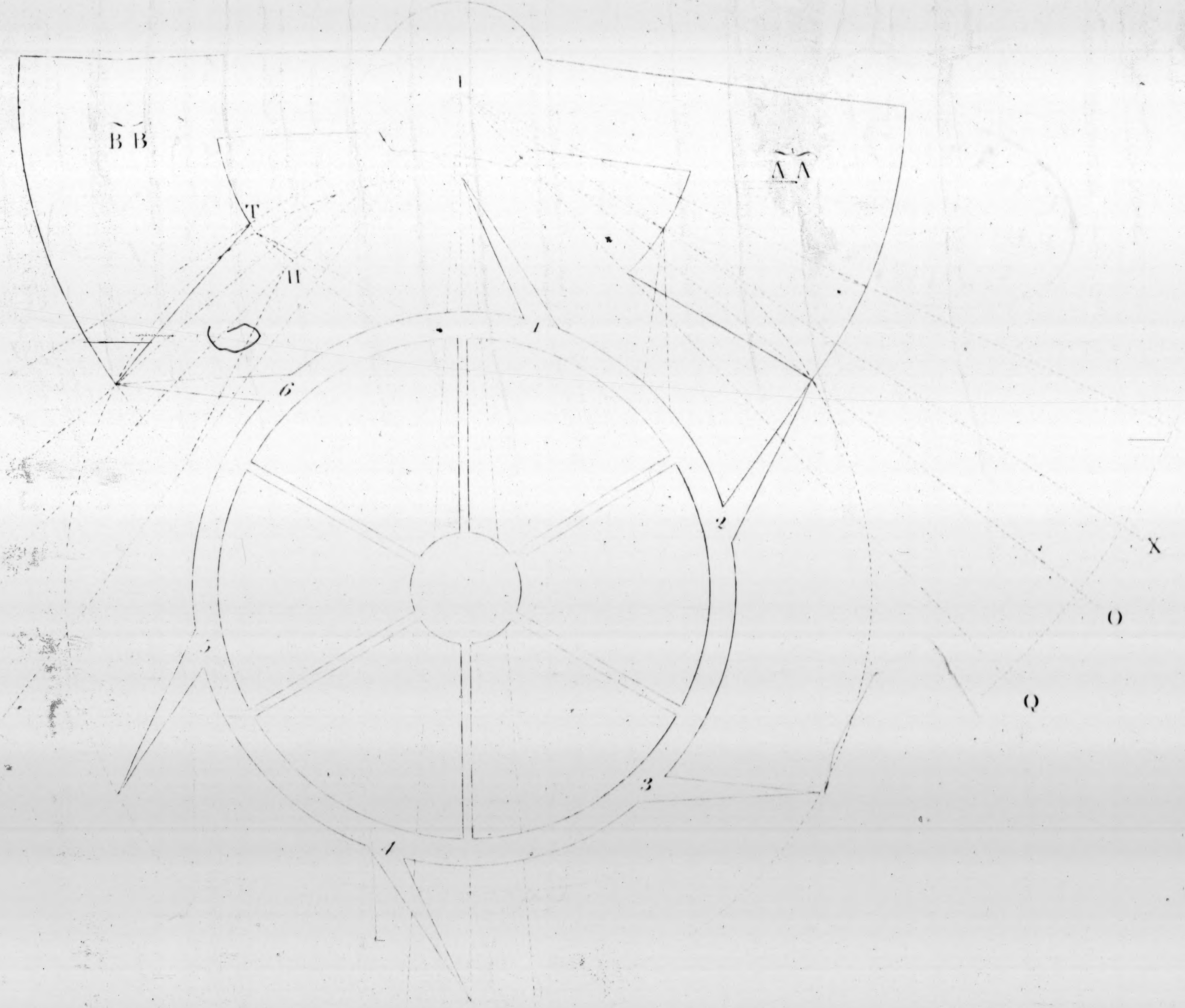


Fig. 3.



J^n^ Basire. sculp.

Fig. 1.

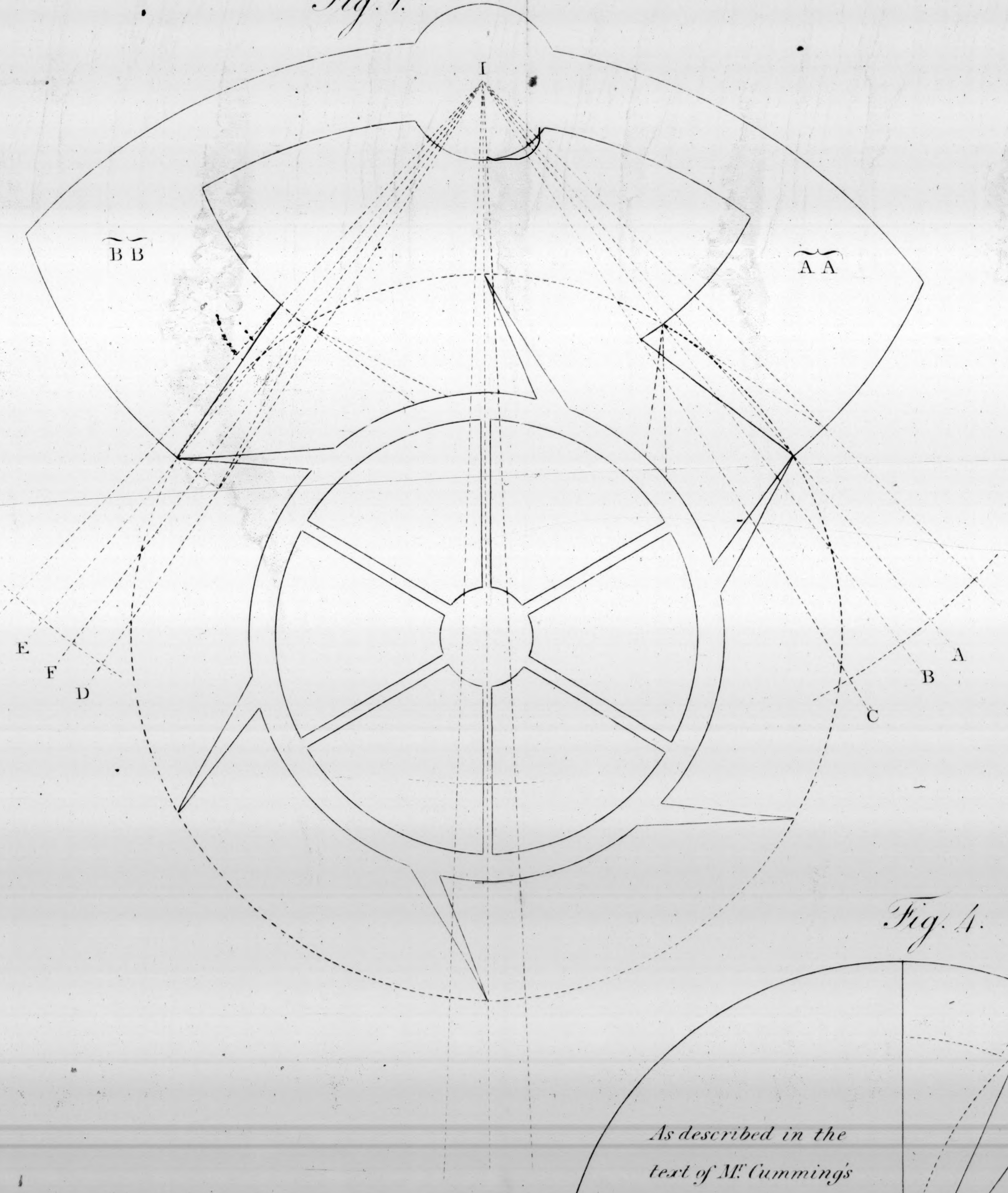


Fig. 2.

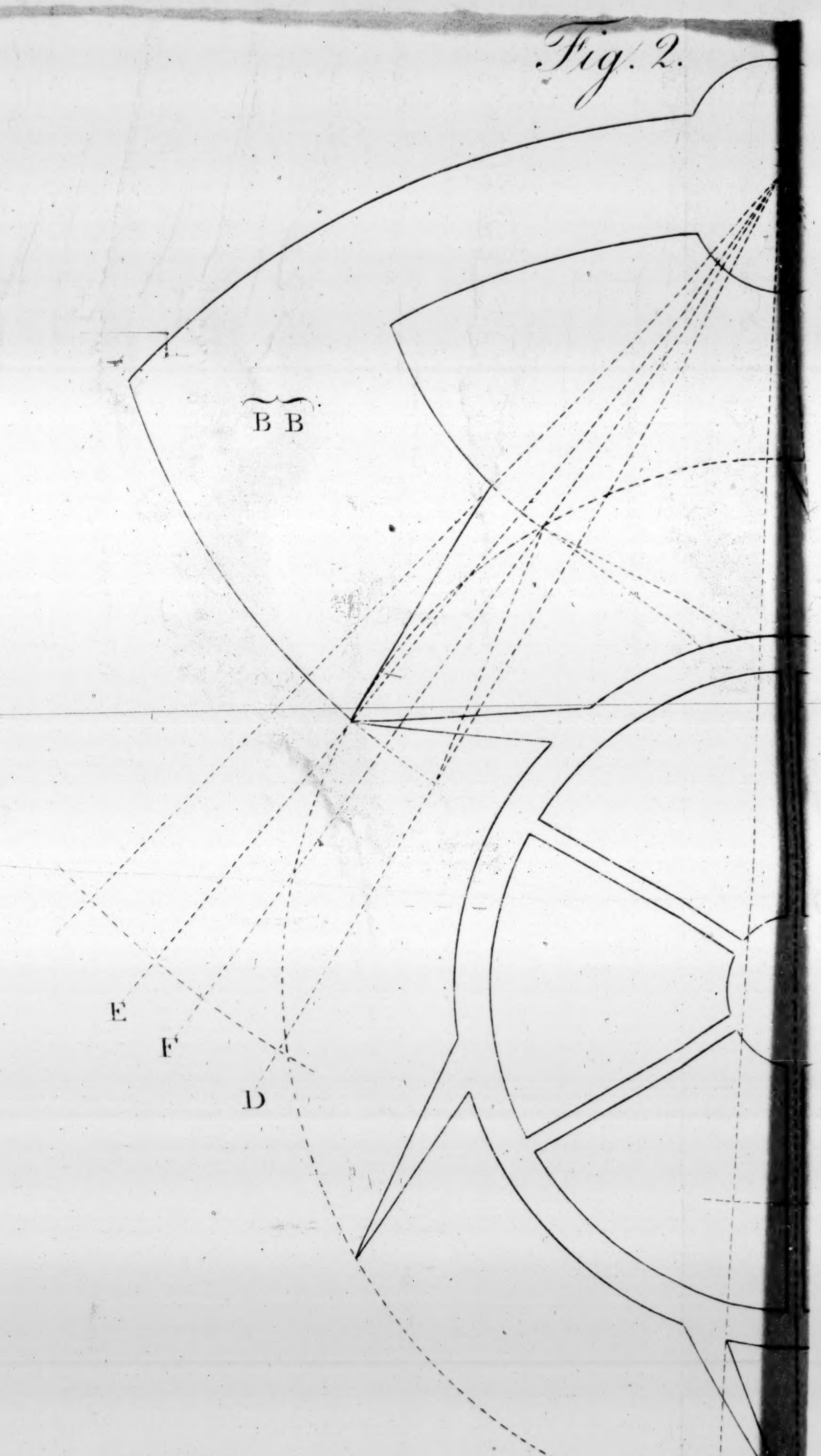
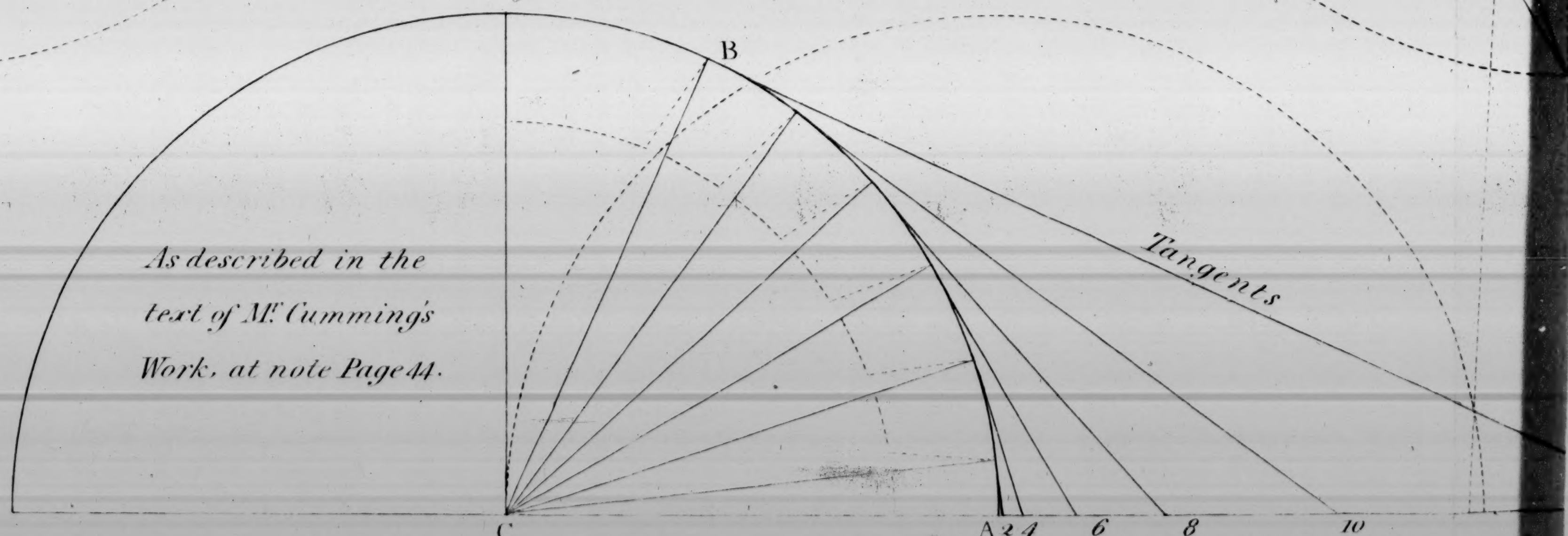


Fig. 4.



As described in the text of Mr. Cumming's Work, at note Page 44.

B. L. Vulliamy, Clock Maker to the King, delin.

Published by Ja

Fig. 2.

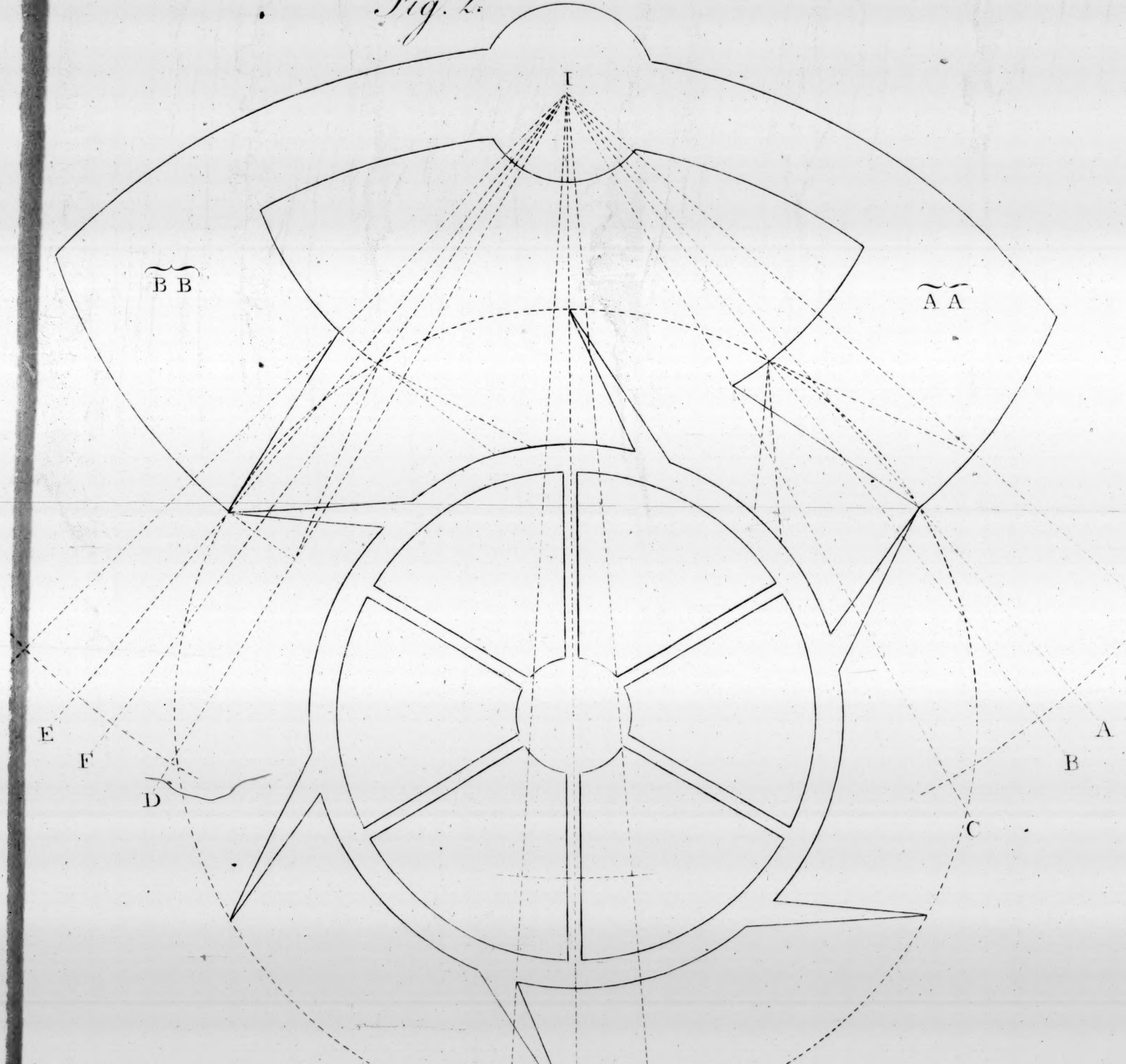
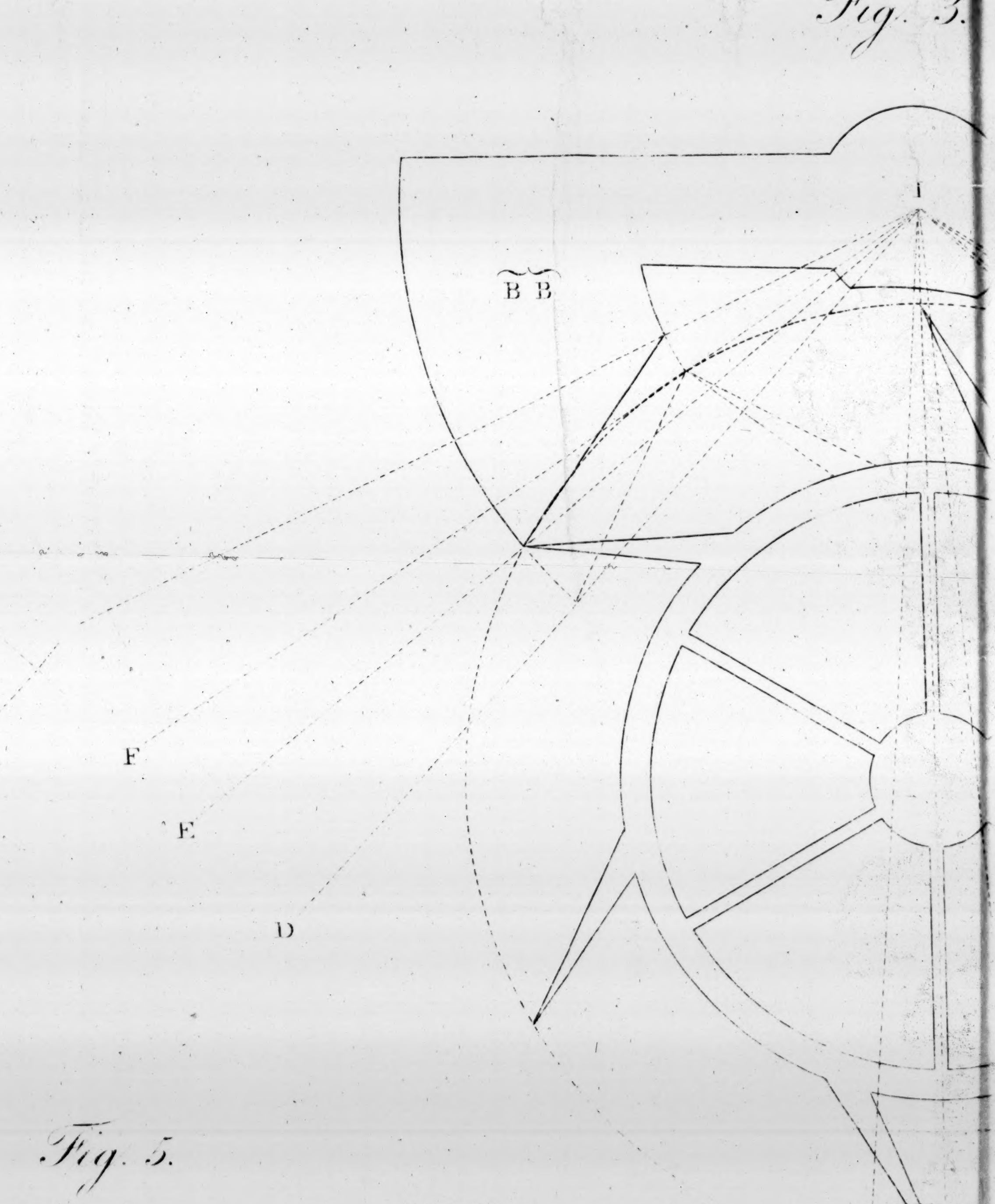


Fig. 3.



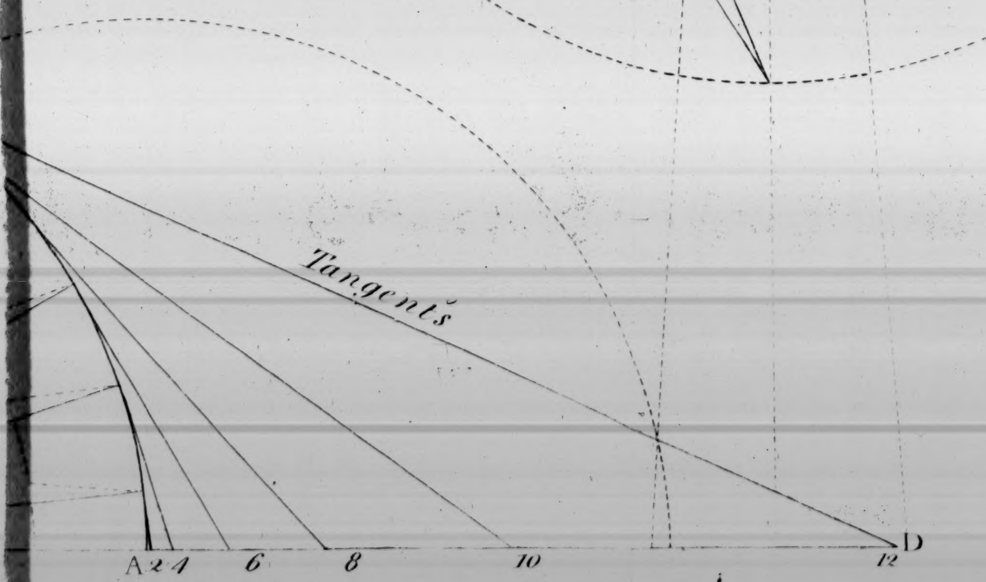
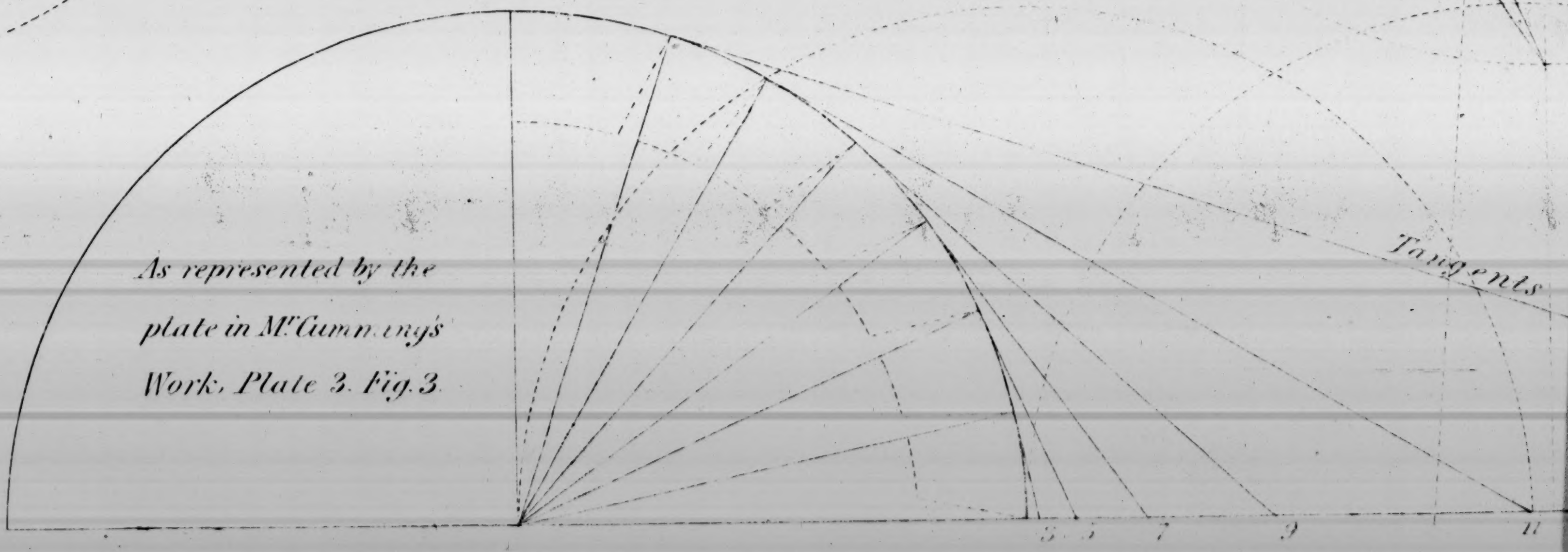


Fig. 5.


As represented by the plate in Mr. Cumming's Work, Plate 3. Fig. 3.

Published by John Murray, Albemarle Street, London: 1823.

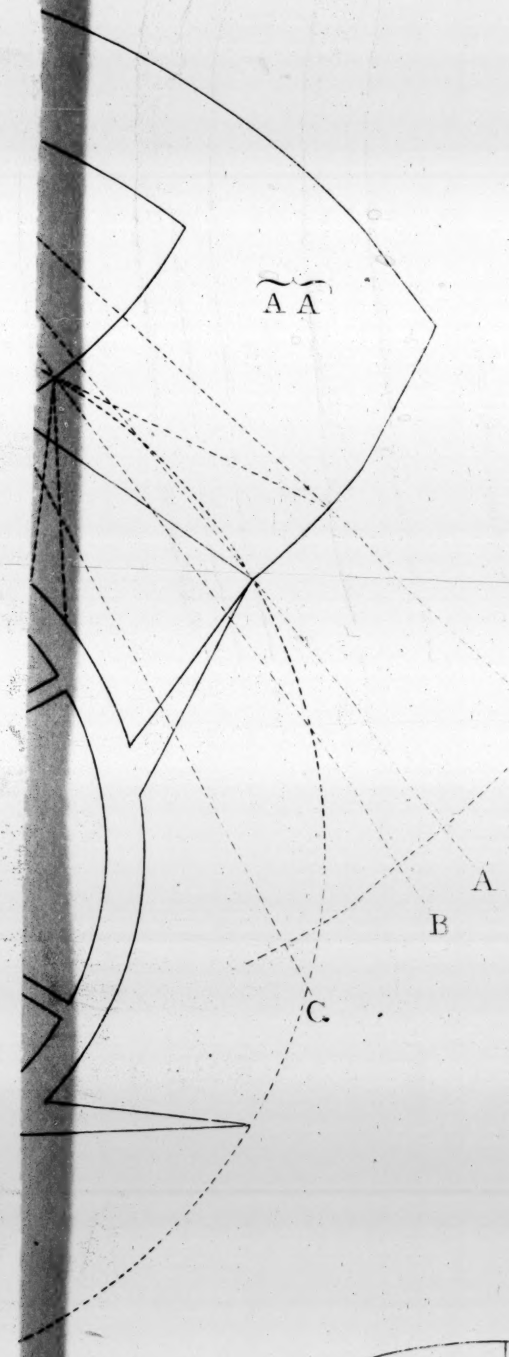


Fig. 3.

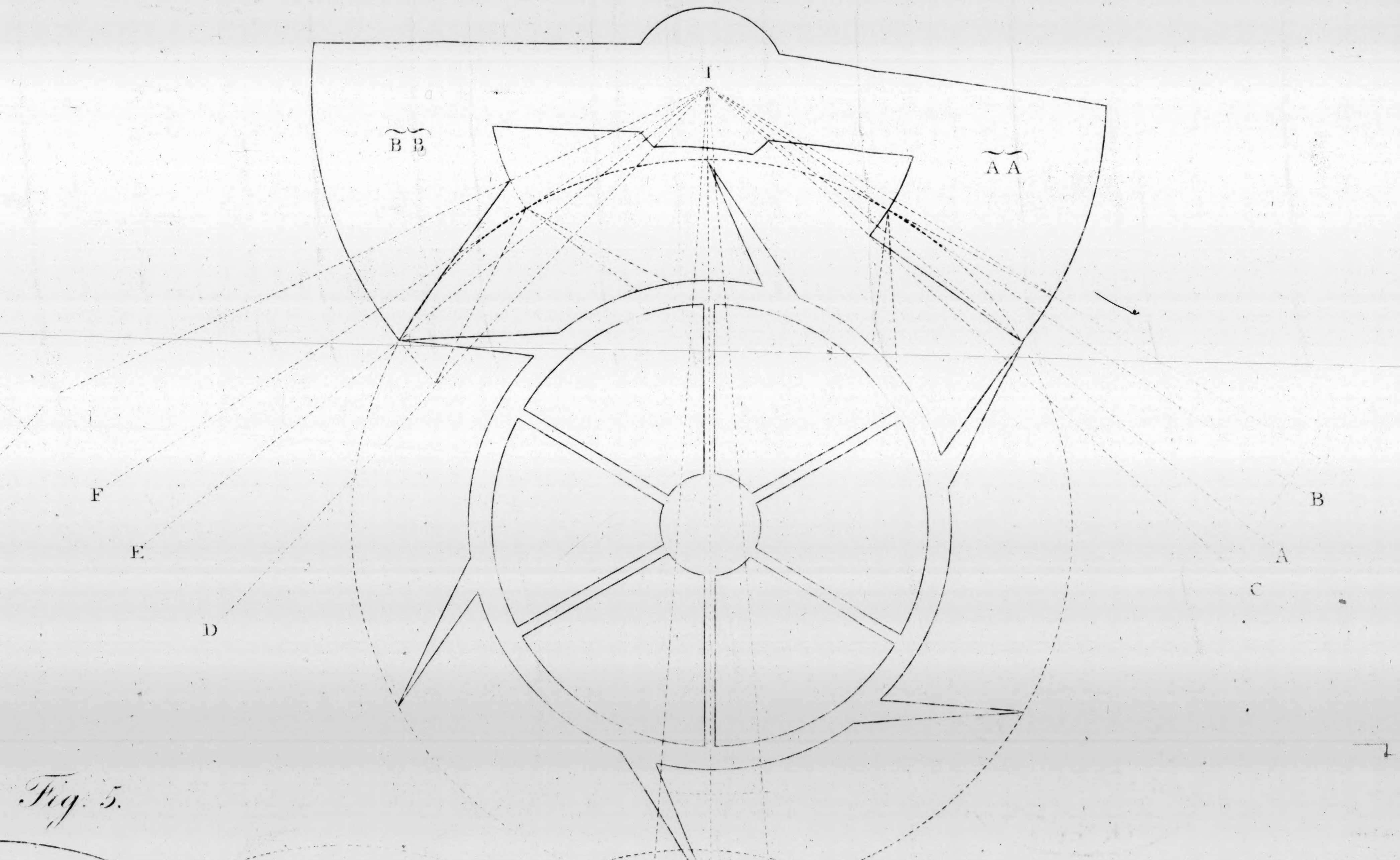
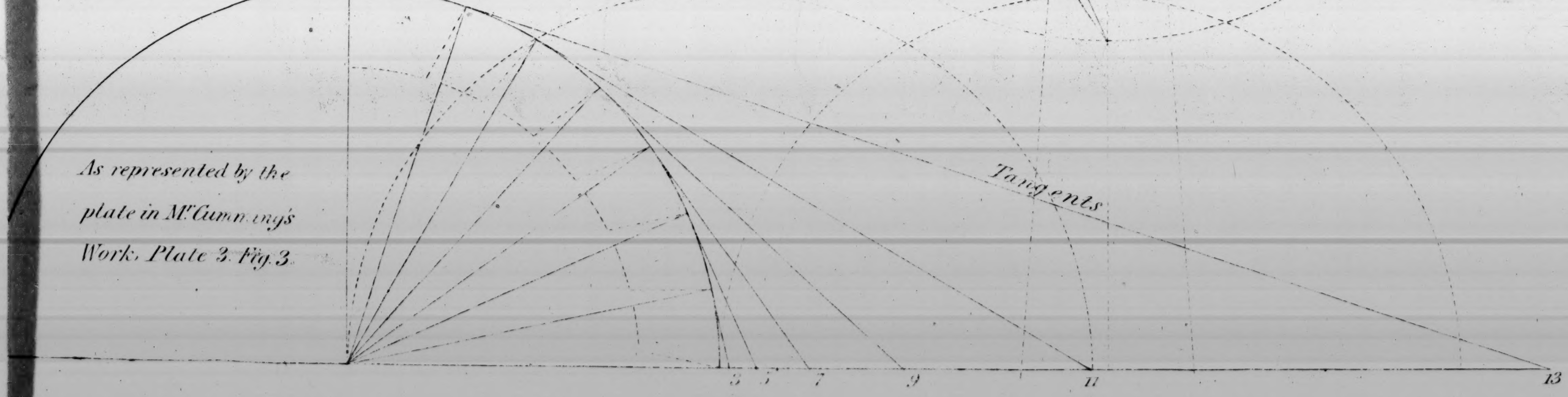


Fig. 5.



As represented by the plate in Mr. Cumming's Work, Plate 3. Fig. 3.

London: 1823

GLASGOW
PHILOSOPHICAL
SOCIETY.